

REMARKS

Applicants appreciate the Examiner's thorough consideration provided the present application. Claims 1-22 are present in the Application. Claims 1, 8, 21 and 22 are independent. By this Amendment, claims 1 and 8 are amended and claims 21 and 22 are added. No new matter is involved.

Reconsideration of this application is respectfully requested.

Claim Rejections Under 35 U.S.C. §103

Claims 1, 5-8, 12-14, 19 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0010573 to Wakita et al. ("Wakita") in view of U.S. patent Application Publication 2005/0171757 to Appelby and further in view of U.S. Patent 6,604,101 to Chan. Claims 2 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wakita in view of Appelby and Chan and further in view of U.S. Patent 5,321,607 to Fukumochi. Claims 4 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wakita in view of Appelby and Chan and further in view of Tolin et al. ("Tolin"), U.S. Patent No. 5,490,061. Claims 3, 10 and 15-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wakita in view of Appelby, Chan, Fukumochi and U.S. patent 5,608,623 to Sata et al. ("Sata"). These rejections are respectfully traversed.

Because the rejection is based on 35 U.S.C. §103, what is in issue in such a rejection is "the invention as a whole, "not just a few features of the claimed invention. Under 35 U.S.C. §103, " [a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter *as a whole* would have been obvious

at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The determination under §103 is whether the claimed invention *as a whole* would have been obvious to a person of ordinary skill in the art at the time the invention was made. *See In re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988). In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety. *See Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1567, 220 USPQ 97, 101 (Fed. Cir. 1983).

In rejecting claims under 35 U.S.C. §103, it is incumbent on the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in *Graham v John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one of ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. *See Uniroyal Inc. v. F-Wiley Corp.*, 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988), *cert. denied*, 488 U.S. 825 (1988); *Ashland Oil, Inc. v Delta Resins & Refractories, Inc.*, 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), *cert. denied*, 475 U.S. 1017 (1986); *ACS Hospital Systems, Inc. v Montefiore Hospital*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the Examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). The mere fact that the prior art may be modified in the

manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification. *See In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 84 (Fed. Cir. 1992). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be suggested or taught by the prior art. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1970). All words in a claim must be considered in judging the patentability of that claim against the prior art. *See In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

A suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." *See C.R. Bard, Inc. v. M3 Sys. Inc.*, 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." *See In re Dembiczak*, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617 (Fed. Cir. 1999).

Moreover, it is well settled that the Office must provide objective evidence of the basis used in a prior art rejection. A factual inquiry whether to modify a reference must be based on objective evidence of record, not merely conclusory statements of the Examiner. *See In re Lee*, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

Furthermore, during patent examination, the PTO bears the initial burden of presenting a *prima facie* case of unpatentability. *See In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785788 (Fed. Cir. 1984). If the PTO fails to meet this burden, then the Applicant is entitled to the patent. Only when a *prima facie* case is made, the burden shifts to the applicant to come forward to rebut such a case.

Independent claim 1, as amended, recites a combination of features including an input step in which the one or more keywords in the source language are input via an input means without inputting a full text sentence in the source language, the one or more keywords being a segment of the full text sentence in the source language; a sentence pair extraction step in which a sentence pair extraction means extracts one or more sentence pairs each including at least one of the keywords from a parallel corpus database including partial correspondence information indicating correspondence between a word/phrase in the source language and a word/phrase in the target language in each sentence pair; a keyword-related phrase storage step in which a target-language keyword-related phrase corresponding to each source-language keyword-related phrase is detected from the partial correspondence information of each sentence pair and stored as a pair or keyword-related phrases in the source language and in the target language in the form of a keyword-related phrase table in a storage means; a text sentence candidate generation step in which a text candidate generation means performs dependency relationships of each keyword-related phrase in the source language and in the target language assumes dependency relationships among keyword-related phrases in the target language described in the keyword-related phrase table and generates one or more target-language text sentence candidates by assuming dependency relationships among the keyword-related phrases; and an output step in which at least one text sentence candidate is output from an output means corresponding to the full text sentence in the source language.

Independent claim 8 recites a combination of features including input apparatus for inputting the one or more keywords in the source language without inputting a full text sentence in the source language, the one or more keywords being a segment of the full text sentence in the

source language; a parallel corpus database including partial correspondence information indicating correspondence between a word/phrase in the source language and a word/phrase in the target language in each sentence pair; a sentence pair extraction means for extracting one or more sentence pairs each including at least one of the keywords from the parallel corpus database; a keyword-related phrase storage means for detecting a target-language keyword-related phrase corresponding to each source-language keyword-related phrase from the partial correspondence information of each sentence pair and storing the detected target-language keyword-related phrase in the form of a keyword-related phrase table; a text candidate generation means that performs dependency relationships of each keyword-related phrase in the source language and in the target language described in the keyword-related phrase table and generates one or more target-language sentence candidates by assuming dependency relationships among the keyword-related phrases; and an output means for outputting at least one text sentence candidate corresponding to the full text sentence in the source language.

Applicants respectfully submit that Wakita differs substantially from the claimed invention in a number of ways.

Firstly, Wakita inputs entire sentences. In this regard, reference is made to paragraph [0108] of Wakita, which states that voice recognizing means 4 recognizes the voice input as an original languages sentence. This differs fundamentally from Applicants' claimed invention, which positively recites "an input step in which the one or more keywords in the source language are input via an input means without inputting a full sentence in the source language . . ."

Secondly, Wakita does not appear to disclose a keyword-related storage step, as claimed. The Office Action asserts that this step is disclosed in paragraphs [1026-8] – which appears to be

a typo and to mean paragraphs [126-8]. Applicants respectfully disagree with this assertion, because Wakita does not disclose storing in the form of a keyword related phrase table, a target-language keyword-related phrase corresponding to each source-language keyword-related detected phrase. Instead, it appears that Wakita outputs a target language expression pattern - see paragraph [0129]. *The Office Action admits that this claimed feature is not found in Wakita.*

Thirdly, Wakita's text sentence candidate generation feature does not involve the claimed keyword-related phrases in the target language in the admittedly lacking keyword-related phrase table.

In an attempt to remedy some of the aforementioned deficiencies of Wakita, the Office Action turns to Appleby. However, in Appleby, the *full text sentence* in the source language to be translated *has to be selected/inputted* at the outset in order for Appleby's translation machine to translate, not just *a segment* of the full text sentence in the source language. In particular, in Appleby's system, it is essential to input a first sentence of the source document, and to map words of a first sentence of the source document and the corresponding sentence of the translation document in a translation step (see FIGs. 3-4 and paragraphs [0039]-[0046]). The user then draws dependency relationship lines between the boxes containing the words (see FIG. 6 and paragraphs [0048]-[0052]). However, Appleby nowhere discloses simply inputting *a segment* (i.e., the one or more keywords) of the full text sentence in the source language *without inputting a full text sentence in the source language*. Therefore, Appleby fails to teach "an input step in which the one or more keywords in the source language are input via an input means *without inputting a full text sentence in the source language*, the one or more keywords being a *segment* of the full text sentence in the source language" as recited in claim 1 and "input

apparatus for inputting the one or more keywords in the source language *without inputting a full text sentence in the source language*, the one or more keywords being a *segment* of the full text sentence in the source language” as recited in Applicants’ independent claims. Unlike Appleby, the present invention simply extracts *a sentence including at least one of the keywords* from a parallel corpus database, which is much simpler and more efficient than Appleby’s word-for-word match.

Even if one of ordinary skill in the art were (solely for the sake of argument) properly motivated to turn to Appleby to modify Wakita, the so-modified version of Wakita would not disclose, suggest, or otherwise render obvious the claimed invention.

The Examiner argued during the interview that Appleby has to store “key words and expression patterns”, disclosed in paragraph [0115] somewhere, and that Appleby has to store phrases shown in Fig. 19c somewhere in its computer, and that an obvious place to store this information is in a table or database.

Even assuming *arguendo* that this is true, neither Wakita nor Appleby discloses or suggests the claimed text sentence candidate generation step in which a text candidate generation means assumes dependency relationships among keyword-related phrases in the target language described in the keyword-related phrase table and generates one or more target-language text sentence candidates;

Chan is applied to disclose an input step in which one or more keywords in the source language are input without inputting a full text sentence, and concludes that it would be obvious to modify Wakita to not input a whole sentence.

Applicants respectfully disagree with this conclusion for a number of reasons.

Firstly, Chan never explicitly (or inherently, i.e., necessarily) states that its query is a single word. Rather, Chan just identifies a keyword from the query, and standardizes the identified keyword to a commonly known word and/or term

Secondly, the Office Action fails to establish by objective factual evidence that one of ordinary skill in the art would be properly motivated to just input a single keyword into Wakita when Wakita is designed to convert expressions of input sentences (paragraph [0103] of Wakita, not just single keywords. No explanation of why just inputting a single keyword and not entire sentences will help assist in converting expressions in those sentences. Applicants respectfully submit that just inputting single keywords into Wakita is counterintuitive and would result in an inoperative device

In reply Action, the final Office Action states that one of ordinary skill in the art would realize that it would be helpful “in order to dialectically standardize the keyword or query inquiry input by the user to a more commonly known or used term, which would be distinctly helpful because standardizing the word to a commonly known word insures that the target language search engine will recognize it, as noted by Chan (Col 4 lines 22-29).

Applicant respectfully disagrees with this conclusion for a number of reasons.

Firstly, both the primary reference, Wakita, and the secondary reference, Appleby, operate by inputting complete sentences and the Office Action fails to explain why one of ordinary skill in the art would want to do away with that primary mode of operation of both of those references to limit the input to less than a whole sentence just to come up with more commonly known terms. It would be far more logical to continue to input complete

sentences and, if one wanted to come up with more common terms, do so after the complete sentence has been inputted.

Another way of saying this, is that the proposed modification of Wakita and Appleby would frustrate a fundamental goal of those references, which is to input a complete sentence that presents words with their specific meaningful relationships in those sentences, which meaningful relationships may well differ if they are plucked out of the context of the entire sentence, and those meaningful relationships may differ even more if they are changed to more common words. Thus, the proposed modification of Wakita and Appleby will more probably hinder a correct translation than help improve a translation.

The assertion that the proposed modified version of Wakita will have enhanced capabilities begs the question of why using less than an entire sentence to input would detract from the contextual meaning of those words not in a complete sentence, and overlooks the fact that individual words can be used after the entire sentence has been input.

In further reply, the Advisory Action states that entering less than a complete sentence would not necessarily do away with the primary mode of operation of both Wakita and Appleby. Applicants completely disagree with this conclusion because, clearly, both Wakita and Appleby input complete sentences. There is no other type of input disclosed in either Wakita or Appleby. Logically, inputting less than a complete sentence eliminates the only disclosed type of input in both of these references.

Another way of stating this is that both Wakita and Appleby teach away from inputting less than a complete sentence and the Office Action has not satisfactorily explained why one

of ordinary skill in the art would be properly motivated to input less than a complete sentence. For example, no evidentiary showing is made that inputting less than a complete sentence would improve the performance of Wakita alone, or as proposed to be modified by Appleby. It is to be remembered, that the burden is on the Office to show on a prima facie basis that one of ordinary skill in the art would be properly motivated to modify Wakita-Appleby as suggested.

Moreover, a user of Chan initially inputs what is characterized by Chan as a "query." Presumably, a query is in the form of a complete sentence. So, Chan, like Wakita and Appleby, enter complete sentences.

Chan then identifies words in the query that have dialectical variations, and performs dialectical standardization on that word before translating that word. Chan does dialectical variation analysis after the query itself is inputted.

Accordingly, Chan does not teach away from entering complete sentences (or complete queries) by inputting less than complete sentences (or complete queries).

Thus, the reliance in the rejection on Chan is misplaced

Furthermore, as amended, claim 1 recites that a target-language keyword-related phrase is stored as a pair of keyword-related phrases in the source language and in the target language. Applicants respectfully submit that this feature is not found in the applied art.

Additionally, as amended, claim 1 recites that the text generation candidate means performs dependency relationships of each keyword-related phrase in the course language and in the target language by assuming dependency relationships among the keyword-related phrases. Applicants respectfully submit that this feature is not found in the applied art.

Moreover, claim 8, as amended, recites that the text generation candidate means performs dependency relationships of each keyword-related phrase in the source language and in the target language described in a keyword-related phrase table and generates one or more target-language text sentence candidates by assuming dependency relationships among the keyword-related phrases. Applicants respectfully submit that this feature is not found in the applied art.

Furthermore, with respect to claims 19 and 20, Applicants respectfully submit that, although Appleby discloses obtaining scores for pairs of source and target analyses (paragraphs 247-254), Appleby merely selects the highest scoring pair and the selection is an *ad hoc* process, where the selection is not made until after the pairs are scored. This means that Appleby does not select a score greater than a predetermined threshold, as recited in claim 19. Nor does Appleby select as many text sentence candidates with highest scores as a predetermined number N.

Applicants respectfully submit that the applied art, including Wakita and Appleby, do not disclose or suggest a text candidate generation means determines dependency relationships of each keyword-related phrase in a source language and in the target language described in a keyword-related phrase table, or generate one or more target-language text sentence candidates by assuming dependency relationships among the keyword-related phrases in the text sentence generation feature of the present invention, as claimed

Accordingly, the Office Action fails to make out a *prima facie* case of obviousness of the claimed invention recited in claims 1, 8 and 19.

With respect to the rejection of claims 2 and 9, Fukumochi is not applied to remedy the aforementioned deficiencies of the Wakita-Appleby reference combination. With respect to the

rejection of claims 4 and 11, Tolin is not applied to remedy the aforementioned deficiencies of the Wakita-Appleby reference combination. With respect to the rejection of 3, 10, 15 and 18, Sata is not applied to remedy the aforementioned deficiencies of the Wakita-Appleby-Tolin reference combination.

Further, with respect to claim 7, as amended, none of the applied art discloses or suggests the evaluation feature that involves the candidate score features.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103 are respectfully requested.

New Claims 21 and 22

Independent claims 21 and 22 are added

Claim 21 recites a method of generating a text sentence in a target language different from a source language, based on one or more words in the source language input as keywords, the method comprising: an input step in which the one or more keywords in the source language are input via an input means without inputting a full text sentence in the source language, the one or more keywords being a segment of the full text sentence in the source language; a sentence pair extraction step in which a sentence pair extraction means extracts one or more sentence pairs each including at least one of the keywords from a parallel corpus database including partial correspondence information indicating correspondence between a word/phrase in the source language and a word/phrase in the target language in each sentence pair; a keyword-related phrase storage step in which a target-language keyword-related phrase corresponding to each source-language keyword-related phrase is detected from the partial correspondence information

of each sentence pair and stored in the form of a keyword-related phrase table in a storage means, wherein the target-language keyword-related phrase is a content word; a word sequence generation rule acquisition step in which a word sequence generation rule acquisition unit searches for a pair of sentences including the content word from a parallel corpus and performs morphological analysis and syntactic analysis, extracts word sequences including the content word from the pair of sentences, and acquires and stores a word sequence generation rule indication how to generate the keyword-related phrase; and a word generation candidate generation step in which a word sequence candidate generator generates word sequence candidates of the target language included in a text sentence candidate in accordance with the word sequence generation rules; a text sentence candidate generation step in which a text candidate generation means performs dependency relationships of each keyword related phrase in the source language and in the target language described in the keyword-related phrase table and/or the word sequence candidates in the source language and in the target language, and generates one or more target language text sentence candidates by assuming dependency relationships among the keyword-related phrases and/or the word sequence candidates; and an output step in which at least one text sentence candidate is output from an output means corresponding to the full text sentence in the source language.

Claim 22 recites an apparatus for generating a text sentence in a target language different from a source language, based on one or more words in the source language input as keywords, the apparatus comprising: input apparatus for inputting the one or more keywords in the source language without inputting a full text sentence in the source language, the one or more keywords being a segment of the full text sentence in the source language; a parallel corpus database

including partial correspondence information indicating correspondence between a word/phrase in the source language and a word/phrase in the target language in each sentence pair; a sentence pair extraction means for extracting one or more sentence pairs each including at least one of the keywords from the parallel corpus database; a keyword-related phrase storage means for detecting a target-language keyword-related phrase corresponding to each source-language keyword-related phrase from the partial correspondence information of each sentence pair and storing the detected target-language keyword-related phrase in the form of a keyword-related phrase table; a word sequence generation rule acquisition unit for acquiring a word sequence generation rule indicating how to generate the keyword-related phrase from a word sequence by searching for a pair of sentences including the content word from a parallel corpus, performing morphological analysis and syntactic analysis, extracting a word sequence including the content word from the pair of sentences; a word sequence candidate generator for generating word sequence candidates in the target language included in a text sentence candidate in accordance with the word sequence generation rules; a text candidate generation means that performs dependency relationships of each keyword related phrase in the source language and in the target language described in the keyword-related phrase table and/or the word sequence candidates in the source language and in the target language, and that generates one or more target language text sentence candidates by assuming dependency relationships among the keyword-related phrases and/or the word sequence candidates; and an output means for outputting at least one text sentence candidate corresponding to the full text sentence in the source language.

Applicants respectfully submit that these claimed features are not disclosed, suggested, or otherwise rendered obvious by the applied art at least for reasons presented above regarding claims 1 and 8.

In addition to the features recited in claims 1 and 8, claims 21 and 22, respectively recite a word sequence generation rule acquisition feature and a word sequence candidate generation feature. As a result of these features, when a given English language keyword-related phrase is not a word sequence but is a content word that can serve as a subject in a word sentence (because there exists a possibility that when the given English language keyword-related phrase includes only a content word, the text candidate generator may not correctly determine the dependency relationship with other English language keyword-related phrases and, thus, may not generate a correct text sentence (as disclosed, for example, in paragraph [0088] of this Application).

Consideration of the merits of claims 21 and 22 is respectfully requested.

CONCLUSION

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Robert J. Webster, Registration No. 46,472 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Dated: April 5, 2010

Respectfully submitted,

By 

Paul C. Lewis

Registration No.: 43,368

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant